

## CLAIMS

1. A method for adjusting transmit power levels of a plurality of  
2 transmissions in a wireless communication system, the method comprising:  
receiving a first indication of a received quality of a first transmission;  
4 adjusting the transmit power level of the first transmission based at least  
in part on the first indication;  
6 receiving a second indication of a received quality of a second  
transmission, wherein the second indication is formed by aggregating a  
8 plurality of bits allocated for feedback for the second transmission; and  
adjusting the transmit power level of the second transmission based at  
10 least in part on the second indication.

2. The method of claim 1, wherein the first indication comprises a power  
2 control command that indicates whether to increase or decrease the transmit  
power level of the first transmission.

3. The method of claim 2, wherein the transmit power levels of the first  
2 and second transmissions are adjusted together based on the power control  
command.

4. The method of claim 3, wherein a difference between the transmit  
2 power levels of the first and second transmissions is adjusted based on the  
second indication.

5. The method of claim 2, wherein the power control command is  
2 generated based on a comparison of the received quality of the first  
transmission against a setpoint.

6. The method of claim 1, wherein the transmit power levels for the first  
2 and second transmissions are adjusted based solely on the first and second  
indications, respectively.

7. The method of claim 1, wherein second indication comprises an  
2 erasure indicator bit indicating whether a frame in the second transmission was  
received correctly or in error.

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8. The method of claim 1, wherein second indication comprises a quality indicator bit indicating the quality of a received frame in the second transmission.

9. The method of claim 1, further comprising:  
receiving a third indication of a received quality of a third transmission, wherein the third indication is formed by aggregating a plurality of bits allocated for feedback for the second transmission; and  
adjusting the transmit power level of the third transmission based at least in part on the third indication.

10. The method of claim 1, wherein the first indication is received via a first power control sub-channel and the second indication is received via a second power control sub-channel.

11. The method of claim 10, wherein the first and second power control sub-channels are formed by time division multiplexing a power control channel.

12. The method of claim 10, wherein a combined bit rate of the first and second power control sub-channels is limited to a particular bit rate.

13. The method of claim 10, wherein bits allocated for the second power control sub-channel are aggregated to form the feedback for the second transmission at a lower rate but having increased reliability.

14. The method of claim 13, wherein the feedback rate of the second transmission is based at least in part on a frame size of the second transmission.

15. The method of claim 13, wherein the feedback rate of the second transmission is selectable from among a set of possible feedback rates.

16. The method of claim 10, wherein the second power control sub-channel is operative to send a plurality of metrics for the second transmission.

17. The method of claim 16, wherein one of the plurality of metrics indicates a step size for adjustment of the transmit power level for the second transmission.

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18. The method of claim 16, wherein one of the plurality of metrics is indicative of an amount of margin in the received quality of the second transmission for no frame erasure.

19. The method of claim 1, wherein the wireless communication system is a CDMA system that conforms to cdma2000 standard or W-CDMA standard, or both.

20. A method for adjusting transmit power levels of a plurality of transmissions in a wireless communication system, the method comprising:  
receiving and processing a first transmission to determine a received quality of the first transmission;  
forming a first indication for the received quality of the first transmission;  
receiving and processing a second transmission to determine a received quality of the second transmission;  
forming a second indication for the received quality of the second transmission; and  
sending the first and second indications via first and second power control sub-channels, respectively, and  
wherein the second indication is formed by aggregating a plurality of bits allocated for feedback for the second transmission.

21. The method of claim 20, further comprising:  
determining a duration of an interruption in the receiving and processing of the first transmission; and  
signaling for an increase in the transmit power level for the first transmission if the duration of the interruption is less than a particular time period.

22. The method of claim 20, wherein (the signaling) is performed if the duration of (the interruption) is less than or equal to half a period of a frame in the first transmission.

23. The method of claim 20, wherein an amount of increase in the transmit power level for the first transmission is based on the duration of (the interruption) and the period of a frame in the first transmission.

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2 ~~24.~~ A power control unit for use in a wireless communication system,  
comprising:

4 a signal quality measurement unit operative to receive and process a  
first transmission to provide a first indication for a first metric for the first  
transmission;

6 a data processor operative to receive and process a second transmission  
to provide a second indication for a second metric for the second transmission;

8 a power control processor coupled to the signal quality measurement  
unit and the data processor, the power control processor operative to direct  
10 transmission of the first and second indications on first and second power  
control sub-channels, respectively, and

12 wherein the second indication is formed by aggregating a plurality of  
bits allocated for feedback for the second transmission.

~~25.~~ The power control unit of claim 1, wherein.

2 ~~26.~~ A power control unit within a base station in a wireless  
communication system , comprising:

4 a channel processor operative to receive and process a received signal to  
recover a first indication of a received quality of a first transmission and a  
second indication of a received quality of a second transmission, wherein the  
6 second indication is formed by aggregating a plurality of bits allocated for  
feedback for the second transmission; and

8 a power control processor coupled to the channel processor and  
operative to receive the first and second indications and provide one or more  
10 commands to adjust transmit power levels of the first and second  
transmissions.

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